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AMENDMENT TO THE CLAIMS:

1. (Currently Amended) A high pressure discharge lamp, comprising:

a quartz glass bulb;

a conductive element which is airtightly sealed at a sealing portion of said quartz glass bulb; and

a pair of electrodes, each electrode of said pair of electrodes being disposed in said quartz glass bulb so as to be opposite the other and said each electrode of said pair of electrodes being connected to said conductive element,

wherein a part of said each electrode of said pair of electrodes is sealed with said quartz glass bulb at said sealing portion so as to generate a contacting portion formed by the part of each electrode of said pair of electrodes and said quartz glass bulb, and

a maximum length L_{max} of the contacting portion is defined as:

L_{max} (mm) $\leq 200/(P \times D)$; and

a minimum length, L_{min}, of the contacting portion is defined as:

L_{min} (mm) $\geq 0.8/(D^2 \times \pi)$ or

L_{min} (mm) ≥ 0.7 whichever is longer,

where D is the diameter (mm) of the corresponding electrode of said pair of electrodes and P is the power (W) supplied to the corresponding electrode of said pair of electrodes, and

wherein said contacting portion terminates inside and beyond an edge of a foil.

2. (Previously Amended) A high pressure discharge lamp according to claim 1, wherein said conductive element comprises molybdenum foils.

3. (Original) A high pressure discharge lamp according to claim 1, wherein the maximum value, R_{max}, of the surface roughness of said pair of electrodes at the contacting portion is about 5 μm or less, where R_{max} is the maximum of the absolute value of the difference between the distance from the axial center of each of said electrodes to a particular point on the surface of each of said electrodes and the mean value of the distance.

4. (Original) A high pressure discharge lamp according to claim 2, wherein the maximum value, R_{max}, of the surface roughness of said pair of electrodes at the contacting portion is in the range between about 2 μm and 3 μm.

5. (Canceled)

6. (Currently Amended) A high pressure discharge lamp, comprising:

a quartz glass bulb;

conductive elements, said conductive elements being airtightly sealed at sealing portions of said quartz glass bulb; and

a pair of electrodes, each electrode of said pair of electrodes being disposed so as to be opposite the other and each of said electrodes being connected to one of said conductive elements,

wherein R_{max} of a contacting portion of each of said electrodes is about 5μm or less, wherein R_{max} is a maximum of an absolute value of a difference between a distance from an axial center of each of said electrodes to a particular point on a surface of each of said electrodes and a mean value of the distance, and

wherein said contacting portion terminates inside and beyond an edge of a foil.

7. (Previously Amended) A high pressure discharge lamp according to claim 6, wherein conductive elements comprises molybdenum foils.

8. (Previously Amended) A high pressure discharge lamp according to claim 6, wherein the length of said contacting portion of each of said electrodes is in the range between about P/150 and P/100 mm from an end of each of said electrodes along the length of each of said electrodes, where P is a supplied power to said high pressure discharge lamp in watts.

9. (Previously Amended) A high pressure discharge lamp according to claim 6, wherein the maximum value of the surface roughness of the contacting portion of each of said electrodes is about 3μm or less.

10. (Previously Amended) A high pressure discharge lamp according to claim 6, wherein the maximum value of the surface roughness of the contacting portion of each of said electrodes is about 1μm or less.

11. (Previously Amended) A high pressure discharge lamp according to claim 6, wherein the maximum value of the surface roughness of the contacting portion of each of said electrodes is about 0.5μm or less.

12. (Original) A high pressure discharge lamp according to claim 6, wherein the maximum value of the surface roughness of a portion other than the end portion of each of said electrodes is in the range between about 5 μm and 12 μm.

13. (Original) A high pressure discharge lamp according to claim 6, wherein the maximum value of the surface roughness of a portion of other than the end portion of each of said electrodes is in the range between about 7 μm and 9 μm.

14. (Original) A high pressure discharge lamp according to claim 6, wherein mercury vapor is contained in the high pressure discharge lamp in an amount between about 0.12 and 0.3 mg/mm^3.

15. (Original) A high pressure discharge lamp according to claim 6, wherein a halogen gas is contained in the high pressure discharge lamp in an amount between about 10^{-8} and 10^{-2} mol/mm^3.

16. (Original) A high pressure discharge lamp according to claim 6, wherein an inert gas is contained in the high pressure discharge lamp with a pressure of about 6 kPa or more.

17. (Original) A high pressure discharge lamp according to claim 6, wherein said pair of electrodes comprises tungsten containing potassium oxide.

18. (Original) A high pressure discharge lamp according to claim 6, wherein the bulb wall loading in the high pressure discharge lamp is about 0.8 W/mm^2 or more.

19. (Previously Amended) A high pressure discharge lamp according to claim 6, wherein the contacting portion of each of said electrodes has a surface, said surface being polished by a composite electrolytic polishing method.

20. (Previously Added) The high pressure discharge lamp according to claim 1, wherein said contacting portion covers a distance L from the sealing portion to the end of the electrode, said end of said electrode terminating inside and beyond the edge of a foil.

21. (Previously Added) The high pressure discharge lamp according to claim 1, wherein said power is in a range between 120-200 W.

22. (Previously Added) The high pressure discharge lamp according to claim 1, wherein said high pressure discharge lamp comprises an internal pressure of at least 8MPa.

23. (Previously Added) The high pressure discharge lamp according to claim 1, wherein said diameter of said each electrode is between 0.4 - 0.8 mm.

24. (Previously Added) The high pressure discharge lamp according to claim 1, wherein a distance between said each electrode is 1.0 - 2.0 mm.

25. (Previously Added) The high pressure discharge lamp according to claim 6, wherein said contacting portion is formed by a part of each electrode of said pair of electrodes and said quartz glass bulb.

26. (Previously Added) The high pressure discharge lamp according to claim 6, wherein said contacting portion covers a distance from the sealing portion to the end of the electrode, said end of said electrode terminating inside and beyond the edge of a foil.

27. (Previously Added) The high pressure discharge lamp according to claim 17, wherein said potassium oxide is no more than 30 ppm.